

On the Concept of Type

ALFRED REHDER

In a footnote appended to an article on "Polypetalous Forms of *Vaccinium*," (Torreya 42: 173. 1942) Camp and Gilly write: "One wonders how the apparent basic, normal material can be considered a variation of an obviously derived and abnormal, vegetatively propagated clone (and therefore, biologically an individual) except where nomenclature is an end in itself rather than a means by which information can be better organized. The writers of this note bow to the accusation that they hold to the principle that nomenclature, as such, should be a tool in the science of systematics, rather than the view that systematics is a mental diversion appended to the science of nomenclature."

Camp and Gilly are certainly right in asserting that nomenclature should be a tool in the science of systematics; that is what nomenclature should be and is. Its aim is to make it possible to designate by certain names certain groups of plants and to assure the greatest possible stability of these names. To attain this aim it is necessary to provide rules to be followed in applying names to groups of plants. As the two basic principles to attain the greatest possible stability, the principle of priority of the names proposed and the type concept have been generally accepted. In regard to the type concept Camp and Gilly seem to be confused in so far as they are apparently not aware that there are two kinds of types in taxonomy, namely the nomenclatural type and the biological or phylogenetic type. The nomenclatural type of a species or subdivision of a species is the plant or specimen (or in some cases a description or figure) upon which the name is based, therefore the term "typicus" used as a name for a subdivision of a species refers to the nomenclatural and not to the biological type. The type of a genus is the species, and the type of a family is the genus, upon which the name is based. If a name is based on several species or on several genera simultaneously without the author indicating a certain group as type, the group which best represents the concept of the author is to be selected as lectotype.

In most cases the nomenclatural type and the biological type are identical, but there are cases when the nomenclatural type is clearly a derivative of the group representing the biological type, as in *Rhododendron linearifolium* of which Camp and Gilly say: "One wonders how the apparently basic normal material can be considered a variation of an obviously derived vegetatively propagated clone . . ." but the fact is that no one considers *R. macrosepalum* Maxim. a variation or derivative of *R. linearifolium*, and even Makino who proposed in 1908 the combination *R. macrosepalum* var. *linearifolium* changed it in 1913 to *R. linearifolium* a. *linearifolium* and called the biological type *R. linearifolium* β . *macrosepalum*, because *R. linearifolium* Sieb. & Zucc. of

1846 has priority over *R. macrosepalum* Maxim. of 1870 and represents the nomenclatural type of the group including *R. macrosepalum*. There are many cases, particularly in double-flowered forms, as *Spiraea prunifolia* Sieb. & Zucc., *Rosa Roxburghii* Tratt., *R. xanthina* Lindl. and some other species of *Rosa*, in which the double-flowered form is the nomenclatural type, while the biological type was described later and, if distinguished by a name, must be treated as a variety or form. In such cases, it is clear which form represents the nomenclatural and which the biological type, but in species with geographical or ecological variations opinions may differ as to which is to be considered the phylogenetic type, and if each author were allowed to express his opinion by proposing changes in nomenclature, confusion and instability of names would follow. An author is always free to express his opinion but has no right to change names or combinations of names which are in accordance with the rules of nomenclature.

ARNOLD ARBORETUM, HARVARD UNIVERSITY
JAMAICA PLAIN, MASSACHUSETTS